

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): ~~Flame-hydrolytically~~ A flame-hydrolytically  
produced titanium dioxide powder present in aggregates of primary particles, characterised in  
that

- it has a BET surface of 20 to 200 m<sup>2</sup>/g and
- the half width HW, in nanometers, of the primary particle distribution has  
values between  
$$HW [nm] = a H BET^f \text{ where } a = 670H10^{-9} m^3/g \text{ and}$$
$$-1.3 \leq f \leq -1.0 \text{ and}$$
- the proportion of particles with a diameter of more than 45 µm is in a range  
from 0.0001 to 0.05 wt.%.

Claim 2 (Currently Amended): ~~Flame-hydrolytically~~ The flame-hydrolytically  
produced titanium dioxide powder according to claim 1, ~~characterised in that~~ wherein the  
BET surface is in a range from 40 to 60 m<sup>2</sup>/g.

Claim 3 (Currently Amended): ~~Flame-hydrolytically~~ The flame-hydrolytically  
produced titanium dioxide powder according to claim 2, ~~characterised in that~~ wherein the  
90% spread of the number distribution of the primary particle diameters lies in a range from 5  
to 100 nm.

Claim 4 (Currently Amended): ~~Flame-hydrolytically~~ The flame-hydrolytically  
produced titanium dioxide powder according to claim 2 or 3, ~~characterised in that~~ wherein the  
equivalent circular diameter of the aggregates (ECD) is less than 80 nm.

Claim 5 (Currently Amended): ~~Flame-hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to ~~claims 2 to 4, characterised in that~~ claim 2, wherein the mean aggregate area is less than  $6500 \text{ nm}^2$ .

Claim 6 (Currently Amended): ~~Flame-hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to ~~claims 2 to 5, characterised in that~~ claim 2, wherein the mean aggregate circumference is less than 450 nm.

Claim 7 (Currently Amended): ~~Flame-hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to claim 1, ~~characterised in that~~ wherein the BET surface lies in a range from 80 to  $120 \text{ m}^2/\text{g}$ .

Claim 8 (Currently Amended): ~~Flame-hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to claim 7, ~~characterised in that~~ wherein the 90% spread of the number distribution of the primary particles diameters has values from 4 to 25 nm.

Claim 9 (Currently Amended): ~~Flame-hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to claim 7 ~~or 8, characterised in that~~ wherein the equivalent circular diameter of the aggregates (ECD) is less than 70 nm.

Claim 10 (Currently Amended): ~~Flame-hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to ~~claims 7 to 9, characterised in that~~ claim 7, wherein the mean aggregate area is less than  $6000 \text{ nm}^2$ .

Claim 11 (Currently Amended): ~~Flame hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to ~~claims 7 to 10, characterised in that claim 7,~~ wherein the mean aggregate circumference is less than 400 nm.

Claim 12 (Currently Amended): ~~Flame hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to ~~claims 1 to 11, characterised in that claim 1,~~ wherein the proportion of aggregates and/or agglomerates with a diameter of more than 45  $\mu\text{m}$  lies in a range from 0.001 to 0.01 wt.%.

Claim 13 (Currently Amended): ~~Flame hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to ~~claims 1 to 12, characterised in that claim 1,~~ wherein for a given BET surface it has an anatase/rutile ratio of 2:98 to 98:2.

Claim 14 (Currently Amended): ~~Flame hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to ~~claims 1 to 13, characterised in that claim 1,~~ wherein it has a chloride content of less than 0.1 wt.%.

Claim 15 (Currently Amended): ~~Flame hydrolytically~~ The flame-hydrolytically produced titanium dioxide powder according to ~~claims 1 to 14, characterised in that claim 1,~~ wherein the compacted bulk density has values of 20 to 200 g/l.

Claim 16 (Currently Amended): ~~Process~~ A process for the production of the flame-hydrolytically produced titanium dioxide powder according to ~~claims 1 to 15, characterised in that claim 1, wherein~~

- a titanium halide, preferably titanium tetrachloride, is vapourised at temperatures of less than 200°C, the vapours are transferred to a mixing chamber by means of a carrier gas with a proportion of steam in a range from 1 to 25 g/m<sup>3</sup>, and
- separately from this, hydrogen, primary air, which may optionally be enriched with oxygen and/or pre-heated, and steam are transferred to the mixing chamber,
- wherein the proportion of steam is in a range from 1 to 25 g/m<sup>3</sup> primary air,
- the lambda value lies in the range from 1 to 9 and the gamma value lies in the range from 1 to 9,

following which

- the mixture consisting of the titanium halide vapour, hydrogen, air and steam is ignited in a burner and the flame burns back into a reaction chamber sealed from the ambient air, wherein
  - a vacuum of 1 to 200 mbar exists in the reaction chamber,
  - the exit velocity of the reaction mixture from the mixing chamber to the reaction space lies in a range from 10 to 80 m/sec,
- in addition secondary air is introduced into the reaction chamber, wherein
  - the ratio of primary air to secondary air is between 10 and 0.5,
- following which the solid is separated from the gaseous substances, and
- the solid is then treated with steam.

Claim 17 (Currently Amended): ~~Process~~ The process according to claim 16, characterised in that wherein the steam is introduced together with the air into the mixing chamber.

Claim 18 (Currently Amended): ~~Use of the~~ A flame-hydrolytically produced titanium dioxide powder according to ~~claims 1 to 15~~ claim 1 for the heat protection stabilisation of silicones.

Claim 19 (Currently Amended): ~~Use of the~~ Sunscreen agents comprising a flame-hydrolytically produced titanium dioxide powder according to ~~claims 1 to 15 in sunscreen agents~~ claim 1.

Claim 20 (Currently Amended): A catalyst, a catalyst carrier, a photocatalyst, and an abrasive for the production of dispersions comprising a ~~Use of the~~ flame-hydrolytically produced titanium dioxide powder according to claim 1 ~~claims 1 to 15 as a catalyst, as a catalyst carrier, as a photocatalyst, and as an abrasive for the production of dispersions.~~